CLAIMS

We claim:

1. A method for dynamically determining a lock mode in a multiprocessor, comprising:
   (a) maintaining first and second system-wide measures of read and write acquisitions; and
   (b) determining a lock mode based upon at least some of said measures.

2. The method of claim 1, wherein said lock mode is selected from the group consisting of: a distributed reader-writer lock mode, a centralized reader-writer lock mode, and an exclusive lock mode.

3. The method of claim 2, wherein said exclusive lock mode is selected from the group consisting of: a test and set lock mode, a test and test and set lock mode, a queued lock mode, a ticket lock mode, and a quad-aware lock mode.

4. The method of claim 1, further comprising switching to the lock mode from another lock mode.

5. The method of claim 1, wherein the lock mode is a distributed reader-writer lock mode, and wherein said determining step is responsive to the system-wide measure of write acquisitions and the system-wide measure of read acquisitions.

6. The method of claim 5, wherein said determining step is further responsive to a quantity of units in the system.

7. The method of claim 6, wherein said unit is selected from a group consisting of: a CPU, a thread, a processor, a transaction, a co-routine, a thread in a multi-threaded architecture, a NUMA module, and a task.

8. The method of claim 1, wherein the lock mode is a centralized lock mode, and wherein said determining step is responsive to the system-wide measure of write acquisitions and the system-wide measure of read acquisitions.

9. The method of claim 1, further comprising maintaining a system-wide measure of read-hold duration.

10. The method of claim 9, wherein the step of maintaining a system-wide measure of read-hold duration includes maintaining a measure of read-hold duration by a unit.

11. The method of claim 10, wherein said unit is selected from a group consisting of: a CPU, a thread, a processor, a transaction, a co-routine, a thread in a multi-threaded architecture, a NUMA module, and a task.

12. The method of claim 9, wherein the lock mode is a centralized lock mode, and wherein said determining step is responsive to the system-wide measures of read acquisitions and read-hold duration.

13. The method of claim 9, wherein the lock mode is an exclusive lock mode and wherein said determining step is responsive to the system-wide measure of read-hold duration.

14. The method of claim 13, wherein said determining step is further responsive to the system-wide measure of read acquisitions.

15. The method of claim 1, further comprising periodically updating at least some of said system-wide measures.

16. The method of claim 1, wherein at least some of said second system-wide measures are selected from a group consisting of: a digital filter, a weighted average, a sliding window average, a finite impulse response, and a central data structure.

17. A computer system comprising:

multiple processors;

first and second system-wide measures of read and write acquisitions of said processors; and

a lock mode manager adapted to select a lock mode responsive to at least some of said measures.

18. The system of claim 17, wherein said lock mode is selected from a group consisting of: a distributed reader-writer lock mode, a centralized reader-writer lock mode, and an exclusive lock mode.

19. The system of claim 18, wherein said exclusive lock mode is selected from a group consisting of: a test and set lock mode, a test and test and set lock mode, a queued lock mode, a ticket lock mode, and a quad-aware lock mode.

20. The system of claim 17, wherein the lock mode is a distributed reader-writer lock mode, and wherein said lock mode manager is responsive to the system-wide measure of write acquisitions and the system wide measure of read acquisitions.

21. The system of claim 17, wherein the lock mode is a centralized lock mode, and wherein said lock mode manager is responsive to the system-wide measure of write acquisitions and the system-wide measure of read acquisitions.

22. The system of claim 17, wherein the lock mode is a centralized lock mode, and wherein said lock mode manager is responsive to the system-wide measure of read acquisitions and a system-wide measure of read-hold duration.

23. The system of claim 17, wherein the lock mode is an exclusive lock mode and wherein said lock mode manager is responsive to a system-wide measure of read-hold duration.

24. In a multiprocessor system, an article comprising:

a computer-readable signal bearing medium;

means in the medium for maintaining first and second system-wide measures of read and write acquisitions; and

means in the medium for selecting a lock mode responsive to at least some of said measures.

25. The article of claim 24, wherein the medium is selected from a group consisting of: a recordable data storage medium, and a modulated carrier signal.

26. The article of claim 24, wherein said lock mode is selected from a group consisting of: a distributed reader-writer lock mode, a centralized reader-writer lock mode, and an exclusive lock mode.

27. The article of claim 24, wherein the lock mode is a distributed reader-writer lock mode, and wherein said means in the medium for selecting a lock mode is responsive to the system-wide measure of writer acquisitions and the system wide measure of read-acquisitions.

28. The article of claim 24, wherein the lock mode is a centralized lock mode, and wherein said means in the medium for selecting a lock mode is response to the

system-wide measure of write acquisitions and the system-wide measure of read acquisitions.

29. The article of claim 24, wherein the lock mode is a centralized lock mode, and wherein said means in the medium for selecting a lock mode is responsive to a system-wide measure of read acquisitions and a system-wide measure of read-hold duration.

30. The article of claim 24, wherein the lock mode is an exclusive lock mode and wherein said lock mode manager is responsive to a system-wide measure of read-hold duration.

31. The article of claim 24, wherein at least some of said second system-wide measures are selected from a group consisting of: a digital filter, a weighted average, a sliding window average, a finite impulse response, and a central data structure.